What is claimed is:

1. An interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals, comprising:

extraction means for extracting the interference signal from the input signal;

removal means for removing the extracted interference signal from the input signal;

extraction control means for controlling extraction of the interference signal by the extraction means in accordance with a removal result of the removal means; and

extraction-amount suppression means for suppressing the interference signal amount to be extracted by the extraction means in accordance with the input signal;

wherein

the extraction control means computes a control vector constituted of a plurality of digital control values for controlling extraction of interference signals and outputs the control vector to the extraction means,

the extraction means extracts the inner product of an input vector constituted of a plurality of input signal values and the control vector output from the extraction control means as an interference signal, and

the extraction-amount suppression means restricts the effective word length of a digital control value constituting the control vector output from the extraction

control means and suppresses the interference signal amount to be extracted by the extraction means.

2. An interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals, comprising:

extraction means for extracting the interference signal from the input signal;

removal means for removing the extracted interference signal from the input signal;

extraction control means for controlling extraction of the interference signal by the extraction means in accordance with a removal result of the removal means; and

extraction-amount suppression means for suppressing the interference signal amount to be extracted by the extraction means in accordance with the input signal; wherein

the extraction control means computes a control vector constituted of a plurality of control values for controlling extraction of interference signals in accordance with a digital operator and outputs the control vector to the extraction means,

the extraction means extracts the inner product of an input vector constituted of a plurality of input signal values and the control vector output from the extraction control means as an interference signal, and

the extraction-amount suppression means restricts the effective word length of a digital operator used by the extraction control means and suppresses the interference signal amount to be extracted by the extraction means.

3. An interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals, comprising:

extraction means for extracting the interference signal from the input signal;

removal means for removing the extracted interference signal from the input signal;

extraction control means for controlling extraction of the interference signal by the extraction means in accordance with a removal result of the removal means; and

extraction-amount suppression means for suppressing the interference signal amount to be extracted by the extraction means in accordance with the input signal; wherein

the extraction control means computes a control vector constituted of a plurality of control values for controlling extraction of interference signals and outputs the control vector to the extraction means,

the extraction means extracts the inner product of an input vector constituted of a plurality of input signal values and the control vector output from the extraction control means as an interference signal, and

the extraction-amount suppression means multiplies the control vector output from the extraction control means by a control coefficient of less than 1 to suppress the interference signal amount to be extracted by the extraction means.

4. An interference-signal removing apparatus for removing a narrow-band interference signal from input signals including wide-band desired signals and the narrow-band interference signals, comprising:

extraction means for extracting the interference signal from the input signal;

removal means for removing the extracted interference signal from the input signal;

extraction control means for controlling extraction of the interference signal by the extraction means in accordance with a removal result of the removal means; and

extraction-amount suppression means for suppressing the interference signal amount to be extracted by the extraction means in accordance with the input signal; wherein

the extraction control means updates a control vector constituted of a plurality of control values for controlling extraction of interference signals by using the last-time control vector and outputs the updated result to the extraction means,

the extraction means extracts the inner product of an input vector constituted of a plurality of input signal

values and the control vector output from the extraction control means as an interference signal, and

the extraction-amount suppression means multiplies the last-time vector used to update a control vector by the extraction control means by a control coefficient of less than 1 to suppress the interference signal amount to be extracted.

5. The interference-signal removing apparatus according to claim 3, wherein

the extraction-amount suppression means controls the value of a control coefficient in accordance with an input signal and performs the multiplication of a control vector and a control coefficient at a predetermined time interval to suppress the interference signal amount to be extracted by the extraction means.

6. The interference-signal removing apparatus according to claim 4, wherein

the extraction-amount suppression means controls the value of a control coefficient in accordance with an input signal and performs the multiplication of a control vector and a control coefficient at a predetermined time interval to suppress the interference signal amount to be extracted by the extraction means.

7. The interference-signal removing apparatus according to claim 3, wherein

the extraction-amount suppression means performs the multiplication of a control vector and a control

coefficient at a predetermined cycle by keeping the control coefficient constant to suppress the interference signal amount to be extracted by the extraction means.

8. The interference-signal removing apparatus according to claim 4, wherein

the extraction-amount suppression means performs the multiplication of a control vector and a control coefficient at a predetermined cycle by keeping the control coefficient constant to suppress the interference signal amount to be extracted by the extraction means.

9. The interference-signal removing apparatus according to claim 1, wherein

the extraction control means computes a control vector at a predetermined time interval.

10. The interference-signal removing apparatus according to claim 2, wherein

the extraction control means computes a control vector at a predetermined time interval.

11. The interference-signal removing apparatus according to claim 3, wherein

the extraction control means computes a control vector at a predetermined time interval.

12. The interference-signal removing apparatus according to claim 4, wherein

the extraction control means updates a control vector at a predetermined time interval.

13. The interference-signal removing apparatus according to claim 1, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in a mode preset in accordance with an input signal.

14. The interference-signal removing apparatus according to claim 2, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in a mode preset in accordance with an input signal.

15. The interference-signal removing apparatus according to claim 3, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in a mode preset in accordance with an input signal.

16. The interference-signal removing apparatus according to claim 4, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in a mode preset in accordance with an input signal.

17. The interference-signal removing apparatus according to claim 1, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in accordance with the power difference between a desired signal and an interference signal included in input signals.

18. The interference-signal removing apparatus according to claim 2, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in accordance with the power difference between a desired signal and an interference signal included in input signals.

19. The interference-signal removing apparatus according to claim 3, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in accordance with the power difference between a desired signal and an interference signal included in input signals.

20. The interference-signal removing apparatus according to claim 4, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in accordance with the power difference between a desired signal and an interference signal included in input signals.

21. The interference-signal removing apparatus according to claim 1, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in accordance with the power of a desired signal included in input signals.

22. The interference-signal removing apparatus according to claim 2, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in accordance with the power of a desired signal included in input signals.

23. The interference-signal removing apparatus according to claim 3, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in accordance with the power of a desired signal included in input signals.

24. The interference-signal removing apparatus according to claim 4, wherein

the extraction-amount suppression means suppresses the interference signal amount to be extracted by the extraction means in accordance with the power of a desired signal included in input signals.

25. An interference-signal removing apparatus for removing narrow-band signals from input signals including wide-band

desired signals and said narrow-band interference signals, wherein

the interference signal amount to be extracted included in input signals is suppressed in accordance with said input signals and extracted interference signals are removed from said input signals.

26. An interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals, comprising:

extraction means for extracting interference signals from input signals;

removal means for removing extracted interference signals from input signals;

extraction control means for controlling extraction of interference signals by extraction means in accordance with a removal result of removal means; and

extraction-amount suppression means for suppressing the interference signal amount to be extracted by extraction means in accordance with input signals.

27. The interference-signal removing apparatus according to claim 26, wherein

extraction-amount suppression means suppresses the interference signal amount to be extracted by extraction means in accordance with the power difference between desired signals and interference signals included in input signals.

28. The interference-signal removing apparatus according to claim 26, wherein

extraction-amount suppression means suppresses the interference signal amount to be extracted by extraction means in accordance with the power of desired signals included in input signals.